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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,359	08/22/2003	Steve D. Schmeichel	758.1452USU1	8621

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EXAMINER

TRAN, DIEM T

ART UNIT	PAPER NUMBER
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3748

DATE MAILED: 02/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/646,359

Applicant(s)

SCHMEICHEL ET AL.

Examiner

Diem Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Objections

Claims 12, 13 are objected to because of the following informalities:

-In claim 12, line 3 and claim 13, line 2, "low" should be inserted after "ultra".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 8, 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gieseke et al. (WO 01/47618) in view of Kashiya et al. (US Patent 5,205,265).

Regarding claims 1, 8, Gieseke discloses an engine system comprising:

a diesel engine (30) having a crankcase with air intake structure, blow-by vent structure, and exhaust port structure; a blow-by filter (36) in gas-flow communication with said blow-by vent structure of said crankcase (see Figure 1); however, fails to disclose an oxidation catalyst located in the gas flow communication with said exhaust port structure. Kashiya teaches that it is conventional in the art, to utilize a non-specific catalytic converter (32) located in the exhaust system of the engine (see Figure 1). It is well known to those with ordinary skill in the art that an oxidation catalytic converter has the function of oxidizing the unburnt hydrocarbon, CO in the exhaust gas.

It would have been obvious to one having ordinary skill in the art at the time the invention was made, to have utilized the teaching of Kashiya, in the Gieseke system, since the use thereof would have reduced the pollutant emissions from the engine.

Regarding claim 2, Gieseke further discloses an air filter (32) upstream of said engine, a turbo (34) downstream of said air filter (32) and upstream of said crankcase; said turbo being in gas-flow communication with said air filter and said air intake structure of said crankcase; and said blow-by filter (36) being downstream of said crankcase and upstream of said turbo (34); said blow-by filter including a filtered gas port; said filtered gas port being upstream of and in gas flow communication with said turbo (see Figure 1).

Regarding claim 11, Gieseke discloses a method of reducing total emissions of a turbo-charged diesel engine (30) having an engine crankcase and an exhaust tailpipe; the total emissions including particulate matter emissions from the engine crankcase added to the particulate matter emissions from the exhaust tailpipe; the method comprising running the engine to produce crankcase blow-by gases and an exhaust stream; filtering the blow-by gases and directing filtered blow-by gases back into the engine crankcase (see Figure 1); however, fails to disclose treating the exhaust stream with a catalyst and the total emissions are reduced by 25% or greater when compared to the same engine that does not filter the blow-by gases and that does not treat the exhaust stream with a catalyst. Kashiya teaches that it is conventional in the art, to utilize a catalyst (32) located in the exhaust system of the engine (see Figure 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made, to have utilized the teaching of Kashiya, in the Gieseke system, since the use thereof would have reduced the pollutant emissions from the engine.

Regarding claims 12, 13, the modified Gieseke method discloses all the claimed limitations as discussed in claim 11 above; however, fails to disclose that said step of running the engine includes using ultra low sulfur density fuel wherein total emissions are reduced by 25-50%. Sulfur is an undesired compound in fuel that causes the emission of harmful SO_x into the atmosphere. Therefore, regulations have been set up to require fuel used in the internal combustion engines to contain as a little sulfur as possible. Thus, it is obvious to one having ordinary skill in the art that Gieseke uses low sulfur density fuel or ultra low sulfur density in their engine.

Regarding to the claimed limitation of total emissions being reduced by 25-50%, these limitations recited in the claim are given little patentable weight in that, the modified Gieseke device contains the same claimed limitations and the Examiner has no reason to believe it would perform any different than that now claimed.

Regarding claim 14, Gieseke further discloses that the step of filtering the blow-by gases includes directing the blow-by gases through a coalescer filter to coalesce the gases into liquid; and then, from the coalescer filter through a barrier filter to remove at least some particulate material (see page 6, lines 23-31).

Claims 3-7, 9, 10, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gieseke et al. (WO 01/47618) in view of Kashiya et al. (US Patent 5,205,265) as applied to claims 2, 8, 11 above, and further in view of Sera et al. (US patent 5,726,119).

Regarding claims 3-5, 10, 15, the modified Gieseke method discloses all the claimed limitations as discussed in claims 2, 8, 11 above, however, fails to disclose that said oxidation

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catalyst arrangement comprises a catalytic converter honeycomb structure with a catalyst coating. Sera teaches that it is conventional in the art, to utilize an oxidation catalyst comprising a catalytic converter honeycomb structure with a catalyst coating (see col. 3, lines 15-20, 25-35).

It would have been obvious to one having ordinary skill in the art at the time the invention was made, to have utilized the teaching of Sera, in the modified Gieseke system, since the use thereof would have been routinely practiced by those having ordinary skill in the art.

Regarding claim 6, Gieseke further discloses said blow-by filter includes:

a gas inlet (58) aperture in flow communication with said blow-by vent structure of said crankcase, a first stage coalescer filter oriented in extension across the gas inlet aperture and separating liquid from a gas stream; a liquid flow outlet (62) in liquid flow communication with and downstream of the first stage coalescer filter; and a second stage filter in gas flow communication with and downstream of the first stage coalescer filter; said filtered gas port (60) being downstream of said second stage filter (see Figures 2-4, page 2, lines 4-13, page 6, lines 23-31).

Regarding claim 7, Gieseke further discloses that said blow-by filter includes a first end cap and a second end cap and the first end cap including a central gas stream inlet aperture; the second stage filter comprises a tubular construction of pleated media extending between the first end cap and the second end cap; the tubular construction of media defining an open tubular interior; the central gas stream inlet aperture of the first end cap being in flow communication with the open tubular interior; the first stage coalescer filter is oriented in extension across the gas stream inlet aperture; the pleated media of the second stage filter, the first end cap, the second end cap, and the first stage coalescer filter are unitary in construction (see page 7, lines 1-

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3); said first stage coalescer filter includes a non-woven fibrous bundle having a first upstream surface area; said second stage filter includes pleated media having a second upstream surface area (see Figures 4, 5, page 2, lines 4-13, page 11, lines 25-32, page 12, lines 1-11); however, fails to disclose first upstream surface area being no more than 10% of the second upstream surface area.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a specific optimum range of the first upstream surface area of no more than 10% of the second upstream surface area, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding claim 9, Gieseke further discloses that the step of directing at least a portion of the crankcase gases includes directing the crankcase gases through a coalescer filter to coalesce the gases into liquid; and then, from the coalescer filter through a barrier filter to remove at least some particulate material (see page 6, lines 23-31).

Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gieseke et al. (WO 01/47618) in view of Kashiya et al. (US Patent 5,205,265) and Sera et al. (US patent 5,726,119).

Regarding claim 16, Gieseke discloses a kit for reducing engine total emissions; the kit comprising a blow-by filter including:

a first end cap and a second end cap; the first end cap including a central gas stream inlet aperture; a second stage filter comprising a tubular construction of pleated media extending

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between the first end cap and the second end cap; the tubular construction of media defining an open tubular interior; the central gas stream inlet aperture of the first end cap being in flow communication with the open tubular interior; a first stage coalescer filter oriented in extension across the gas stream inlet aperture; the pleated media of the second stage filter, the first end cap, the second end cap, and the first stage coalescer filter being unitary in construction (see page 7, lines 1-3); said first stage coalescer filter including a nonwoven fibrous bundle having a first upstream surface area; said second stage filter including pleated media having a second upstream surface area (see Figures 4, 5, page 2, lines 4-13, page 11, lines 25-32, page 12, lines 1-11); however, fails to disclose a first upstream surface area being no more than 10% of the second upstream surface area and a catalytic converter muffler comprising honeycomb structure with a catalyst coating located in the exhaust pipe. Kashiya teaches that it is conventional in the art, to utilize a catalytic converter (32) and a muffler (33) in the exhaust pipe to purify the exhaust gas from the engine (see Figure 1). Sera teaches that it is conventional in the art, to utilize a catalytic converter comprising a catalytic converter honeycomb structure with a catalyst coating (see col. 3, lines 15-20, 25-35) to purify the pollutant emissions from the engine.

It would have been obvious to one having ordinary skill in the art at the time the invention was made, to have utilized the teaching of Kashiya, in the Gieseke system, since the use thereof would have reduced the pollutant emissions from the engine.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a specific optimum range of the first upstream surface area of no more than 10% of the second upstream surface area, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges

involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding claim 17, Gieseke discloses a system having a turbo-charged diesel engine (30) having an engine crankcase with blow-by vent structure and exhaust port structure, a method comprising installing a blow-by filter (36) in gas-flow communication with the engine crankcase blow-by vent structure (see Figure 1); however, fails to disclose installing a catalytic converter muffler arrangement comprising a catalytic converter honeycomb structure with a catalyst coating in gas-flow communication with the engine crankcase exhaust port structure. Kashiyama teaches that a catalytic converter (32) and a muffler are located in the exhaust pipe to purify the exhaust gas from the engine (see Figure 1) and Sera teaches a catalytic converter having a honeycomb structure with a catalyst coating (see col. 3, lines 15-20, 25-35).

It would have been obvious to one having ordinary skill in the art at the time the invention was made, to have utilized the teaching of Kashiyama and Sera, in the Gieseke system, since the use thereof would have reduced the pollutant emissions from the engine.

Regarding claim 18, Gieseke discloses all the claimed limitations as discussed in claim 17 above, Gieseke further discloses that said step of installing a blow-by filter includes installing a blow-by filter (36) including a first end cap and a second end cap; the first end cap including a central gas stream inlet aperture; a second stage filter comprising a tubular construction of pleated media extending between the first end cap and the second end cap; the tubular construction of media defining an open tubular interior; the central gas stream inlet aperture of the first end cap being in flow communication with the open tubular interior; a first stage coalescer filter oriented in extension across the gas stream inlet aperture; the pleated media of the second stage filter, the first end cap, the second end cap, and the first stage coalescer filter being

unitary in construction (see page 7, lines 1-3); the first stage coalescer filter including a nonwoven fibrous bundle having a first upstream surface area; the second stage filter including pleated media having a second upstream surface area (see page 2, lines 4-13, page 11, lines 25-32, page 12, lines 1-11); however, fails to disclose the first upstream surface area being no more than 10% of the second upstream surface area.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a specific optimum range of the first upstream surface area of no more than 10% of the second upstream surface area, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Conclusion

Any inquiry concerning this communication from the examiner should be directed to Examiner Diem Tran whose telephone number is (571) 272-4866. The examiner can normally be reached on Monday -Friday from 8:30 a.m.- 5:00p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reached on (571) 272-4859. The fax number for this group is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about

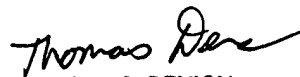
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the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Diem Tran
Patent Examiner
Art unit 3748

DT
February 11, 2005



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